Amendments to the Specification

IN THE ABSTRACT OF THE DISCLOSURE

Attached hereto is a replacement Abstract with markings to show amendments.

IN THE WRITTEN DESCRIPTION

Please replace the paragraph beginning at page 1 line 4 with the following rewritten paragraph:

The present invention relates to a sliding bearing, and more particularly, to a sliding bearing comprising a bearing alloy layer and an overlay layer disposed on the surface of the bearing alloy layer and formed by a solid lubricant and a resin.

~~BACKGRONUD~~BACKGROUND ART

Please replace the paragraph beginning at page 1, line 23, with the following rewritten paragraph:

Consequently, when the rotary shaft is subject to a high speed rotation, the irregularly configured surface of the overlay layer cannot distribute a lubricant oil evenly, presenting problems that the seizure resistance may be degraded and/or a plastic deformation of the overlay layer resulting from the contact of the surface of the overlay layer with the rotary shaft may become uneven to result in an insufficient fitting property.

~~DISCLOUSERE~~DISCLOSURE OF THE INVENTION

Please replace the paragraph beginning at page 2, line 19, with the following rewritten paragraph:

According to the present invention, a regular uneven configuration is formed on the surface of the overlay layer to secure a lubricant in the recesses of the uneven configuration to prevent the sliding bearing from assuming a high temperature, thus improving the seizure resistance. Since the bearing alloy layer has a surface at the boundary with the

overlay layer which is machined to be a flat surface having a fine roughness, the overlay layer has a uniform cross-sectional configuration at all convex areas in the uneven configuration, whereby stresses applied from the rotary shaft to the individual convex areas are also uniform, allowing all of the convex areas to be subject to a uniform plastic deformation, thus improving the fitting property response of the sliding bearing.

BRIEF DESCRIPTION OF THE ~~DRWAINGS~~DRAWINGS

Please replace the paragraph beginning at page 3, line 14, with the following rewritten paragraph:

Figs. 5(a)~(h) are cross-~~-~~sections illustrating the uneven configuration of other embodiments of the present invention~~;~~.

Please replace the paragraph beginning at page 3, line 24, with the following rewritten paragraph:

The bearing alloy layer 2 is formed of an alloy which principally comprises ~~a~~ copper or ~~an aluminium~~aluminum and has an inner peripheral surface which is machined to be a flat surface having a fine roughness and extending parallel to the axis of the sliding bearing 1. The overlay layer 3 comprises MoS_2 as a solid lubricant and PAI resin as a binder resin. The overlay layer 3 is sprayed onto the surface of the bearing alloy layer 2 which is machined to be a flat form as by an air spray, and is set under heat, thus initially forming a layer on the order 10~20μm.

Please replace the paragraphs beginning at page 4, line 25, with the following rewritten paragraphs:

By contrast, in a conventional sliding bearing, the surface of the overlay layer assumes an irregular configuration, which prevents a lubricant oil from being distributed evenly around the inner periphery of the sliding bearing, resulting in a problem that portions of the rotary

shaft may rise in temperature when it is subject to a high speed rotation. When a rotary shaft is journalled by the sliding bearing 1 of the present embodiment, the load from the rotary shaft is applied to the crests of the annular projections 5, but because the annular projections 5 are formed at a constant pitch, the annular projections 5 are subject to an equal pressure. In addition, because the overlay layer 3 assumes a similar configuration at each annular projection 5, the latter is subject to ~~a~~ plastic deformation in ~~the~~a similar manner, allowing an excellent fitting property response of the sliding bearing 1 to be obtained.

By contrast, in a conventional sliding bearing, an irregular configuration of the surface of the overlay layer causes uneven pressures to be applied to the surface of the overlay layer when the rotary shaft is ~~jounalled~~journalled in the sliding bearing, causing an uneven plastic deformation of the overlay layer, resulting in an insufficient fitting property response.

Please replace the paragraphs beginning at page 6, line 4, with the following rewritten paragraphs:

Suppose that annular projections were formed on the surface of the metal bearing alloy layer 2 in ~~aliment~~alignment with the locations of the annular projections 5 in a similar manner as on the surface of the overlay layer 3. In this instance, each annular projection 5 of the overlay layer 3 will be evenly ~~subject~~subjected to ~~a~~ plastic deformation. However, the degree of ~~the~~ plastic deformation which occurs in the overlay layer 3 is reduced, and hence a plastic deformation of the annular projections 5 will be reduced as compared to an arrangement in which the surface the bearing alloy layer 2 is machined to be flat, resulting in a failure to achieve a satisfactory fitting property response of the sliding bearing 1.

An experiment has been conducted for the sliding bearing 1 of the present embodiment. Two sliding bearings are used in

the experiment, both including the bearing alloy layer 2 comprising an ~~aluminium~~aluminum alloy.

Please replace the paragraphs beginning at page 7, line 8, with the following rewritten paragraphs:

Fig. 2 graphically shows results measured with a rotary load testing machine for the seizure resistance of the sliding bearings according to the invention and according to the prior art. The test took place under conditions that the peripheral speed of the rotary shaft at the surface of a sliding contact between the sliding bearing 1 and the rotary shaft is equal to 17.6m/s, the load applied to the sliding bearing 1 is equal to 29MPa and the temperature of the lubricant oil supplied between the sliding bearing 1 and the rotary shaft is equal to 140°C. The experiment mentioned above yielded the results of the test shown in Fig. 2 where it is noted that the temperature of the sliding bearing 1 according to the present invention can be suppressed below 180°C while the temperature of the sliding bearing 1 of the prior art exceeds 180°C. Thus, it is seen that a better lubrication by the lubricant oil takes place in a more favorable manner in the sliding bearing 1 according to the present invention as compared with a conventional sliding bearing, thus providing an excellent seizure resistance.

Fig. 3 graphically shows ~~a~~the result of a determination of the fitting property response of the sliding bearings 1 according to the present invention and according to the prior art which took place with a super-high pressure testing machine. The test took place at a load applied to the sliding bearing 1 which is equal to 29MPa, at the temperature of the lubricant oil supplied to the sliding bearing 1 which is equal to 140°C, at the peripheral speed of the rotary shaft at the surface of sliding contact between the sliding bearing 1 and the rotary shaft which is decreased gradually from 2.7m/s to 0.7m/s at a rate of 0.2m/s over a time interval of ten minutes, and the determination is started at a time interval

of 20 minutes from the commencement of operation of the super-high pressure testing machine to determine a change in the coefficient of friction. It will be understood that the smaller a change in the coefficient of friction as the peripheral speed is reduced, the better the fitting property response.

Fig. 3 graphically shows the results of this experiment where the ordinate represent the coefficient of friction between the sliding bearing 1 and the rotary shaft and the abscissa represents time elapsed. With reference to a graph indicating the response of the prior art product, a sharp rise in the coefficient of friction indicates the instant when the peripheral speed of the rotary shaft is decreased. It is seen from the results of this experiment that with the prior art sliding bearing, the peak in the coefficient friction rises higher as the peripheral speed is decreased while in the sliding bearing according to the present invention, a rise in the coefficient of friction is not so high.

Please replace the paragraph beginning at page 9, line 18, with the following rewritten paragraph:

Fig. 5 shows cross--sections which are contemplated for the regular uneven configurations. It is to be noted that parts corresponding to those shown for the sliding bearing 1 of the first embodiment are designated by like numerals.

Please replace the paragraphs beginning at page 10, line 17, with the following rewritten paragraphs:

While a PAI resin containing 40% of MoS_2 is used for the overlay layer in the experiment, it is also possible to use PAI resin or PI resin containing as additions one or more of MoS_2, graphite, BN (boron nitride), WS_2 (tungsten disulfide), PTFE (polytetrafluoroethylene), fluorinated resin, and Pb.

AVAILABILITY IN INDUSTRIAL USE

In accordance with the present invention, a regular uneven configuration is formed on the surface of the overlay

layer to allow a lubricant oil to be secured in recesses of the uneven configuration to enable a seizure resistance to be improved. In addition, since the bearing alloy layer is machined to be a flat surface having a fine roughness on its surface which represents a boundary with the overlay layer, individual projections are subject to ~~a~~ plastic deformation in an even manner, allowing the fitting property response of the sliding bearing to be improved.